Abstract of the Disclosure

In order to accurately and stably estimate the conditions of a running tire, a vehicle is equipped with a sensor-incorporating tire having, at an equal distance from the center in the axial direction of the tire, pressure sensors (11A, 11B) buried in a tread rubber positioned on the outer side in the radial direction of the tire belt layer of a tire tread portion and on the inner sides in the radial direction of tread blocks, the contact length L_A of the car body side and the contact length L_B of the opposite side of the center in the axial direction of the tire are detected by using the duration times of pressure values from the pressure sensors (11A, 11B) and a wheel speed from a wheel speed sensor (14), and the ratio $R = L_A/L_B$ of the contact length L_A to the contact length L_B is computed to estimate lateral force generated by the tire, or the average contact length L_{AB} which is the average value of the contact lengths L_A and L_B is computed to determine a load applied to the tire.